

What is claimed is:

- 1) Apparatus for evaluating in real-time a packet stream having a plurality of packets, said apparatus comprising:
  - 5 a buffer for receiving the plurality of packets; and
  - a first analysis unit, coupled to said buffer, for analyzing said plurality of packets stored within said buffer in real-time.
- 2) The apparatus of claim 1, wherein said buffer includes a flag bit for  
10 storing packet status information.
- 3) The apparatus of claim 2, wherein said flag bit is set to indicate "start of a new packet", "data valid" indicator or "short packet" for detecting packet framing errors.
- 15 4) The apparatus of claim 1, further comprises:
  - a flushing circuit, coupled to said buffer, for removing unwanted packets from said buffer.
- 20 5) The apparatus of claim 4, wherein said unwanted packets are determined by evaluating a packet identifier (PID) of each packet.
- 6) The apparatus of claim 1, further comprises:
  - 25 a storage medium, coupled to said first analysis unit, for storing a plurality of time base information for said plurality of packets for detecting transport rate jitter.
- 7) The apparatus of claim 1, further comprises:
  - 30 a second analysis unit, coupled to said first analysis unit; and
  - a monitor, coupled to said second analysis unit, where said second analysis unit interfaces with said first analysis unit to display a packet stream analysis on said monitor.

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8) The apparatus of claim 7, wherein said displayed packet stream analysis includes a graphical display of guide PIDs, active PIDs, data rates or stream status.

5 9) Method for evaluating in real-time a packet stream having a plurality of packets, where each packet having a plurality of bytes, said method comprising the step of:

a) receiving the plurality of bytes into a buffer;

b) assigning a flag to each byte to indicate "start of a new packet",

10 "data valid" indicator or "short packet"; and

c) reading said bytes from said buffer to detect packet framing errors.

10) The method of claim 9, wherein said assigning step (b) comprises  
15 the steps of:

b1) setting said flag of a first byte of each of said packets to indicate "start of a new packet";

b2) setting said flag of a second byte of each of said packets to indicate "data valid" indicator; and

20 b3) setting said flag of all remaining bytes of each of said packets to indicate "short packet".

11) The method of claim 10, wherein said buffer is a first-in-first-out (FIFO) buffer and wherein said reading step (c) reads said plurality of  
25 bytes in a memory-mapped fashion.

12) The method of claim 10, further comprises the steps of:

d) setting a "framing error-long packet" flag, a "data invalid error flag" or a "framing error-short packet" flag, if an error is detected.

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13) Method for evaluating in real-time a packet stream having a plurality of packets with each packet having a packet identifier and a plurality of bytes, said method comprising the steps of:

a) receiving the plurality of bytes into a buffer;

b) determining which bytes in said buffer carry scrambled data or non-control-type data; and

c) flushing said bytes that carry scrambled data or non-control-type data from said buffer.

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14) The method of claim 13, wherein said determining step (b) evaluates said packet identifier (PID) for each packet to determine which bytes in said buffer carry scrambled data or non-control-type data.

10 15) The method of claim 13, further comprises the step of:

d) maintaining a reception count for each packet identifier (PID).

16) Method for evaluating in real-time a packet stream having a plurality of packets, said method comprising the steps of:

15 a) receiving the plurality of packets into a buffer;

b) extracting a plurality of time base information from said plurality of packets; and

c) comparing said time base information to detect transport rate jitter.

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17) The method of claim 16, wherein said extracting step (b) comprises the steps of:

b1) computing a difference between a current recorded program clock reference (PCR) value and a last recorded PCR value; and

25 b2) computing a difference between a current (PCR) value and a last PCR value.

18) The method of claim 16, wherein said extracting step (b) comprises the steps of:

30 b1) computing a total unit of bit time by multiplying a number of received packets with a number of bits per packet; and

b2) computing a total unit of bit time by multiplying a difference between a current program clock reference (PCR) value and a last PCR value with a bit rate in units of bits per PCR tick.

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19) The method of claim 16, wherein said extracting step (b) comprises the steps of:

b1) computing a total unit of bit time by multiplying a number of  
5 received packets with a number of bits per packet; and

b2) computing a total unit of bit time by multiplying a difference between a current recorded program clock reference (PCR) value and a last recorded PCR value with a bit rate in units of bits per PCR tick.